FEM1.209:340017

FLOOD INSURANCE STUDY

ORIGINAL
COMPLETED
15

CITY OF SOMERS POINT, NEW JERSEY
ATLANTIC COUNTY

MAY 17, 1982

Federal Emergency Management Agency

COMMUNITY NUMBER - 340017

TABLE OF CONTENTS

		Page
1.0	INTRODUCTION	1
	1.1 Purpose of Study	1
	1.2 Authority and Acknowledgements	1
	1.3 Coordination	1
2.0	AREA STUDIED	2
	2.1 Scope of Study	2
	2.2 Community Description	2
	2.3 Principal Flood Problems	4
	2.4 Flood Protection Measures	4
3.0	ENGINEERING METHODS	4
	3.1 Hydrologic Analyses	5
	3.2 Hydraulic Analyses	6
4.0	FLOOD PLAIN MANAGEMENT APPLICATIONS	6
	4.1 Flood Boundaries	6
5.0	INSURANCE APPLICATION	7
	5.1 Reach Determinations	7
	5.2 Flood Hazard Factors	7
	5.3 Flood Insurance Zones	7
	5.4 Flood Insurance Rate Map Description	8

BEST DOCUMENT AVAILABLE

TABLE OF CONTENTS - continued

	Page
6.0 OTHER STUDIES	8
7.0 LOCATION OF DATA	10
8.0 BIBLIOGRAPHY AND REFERENCES	10

FIGURES

Figure 1 - Vicinity Map	3

TABLES

Table 1 - Summary of Elevations	5
Table 2 - Flood Insurance Zone Data	9

EXHIBITS

Exhibit 1 - Flood Insurance Rate Map Index

Exhibit 2 - Flood Insurance Rate Map

BEST DOCUMENT AVAILABLE

FLOOD INSURANCE STUDY
CITY OF SOMERS POINT, NEW JERSEY

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study investigates the existence and severity of flood hazards in the City of Somers Point, Atlantic County, New Jersey, and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study will be used to convert Somers Point to the regular program of flood insurance by the Federal Emergency Management Agency (FEMA). Local and regional planners will use this study in their efforts to promote sound flood plain management.

In some states or communities, flood plain management criteria or regulations may exist that are more restrictive or comprehensive than those on which these federally-supported studies are based. These criteria take precedence over the minimum federal criteria for purposes of regulating development in the flood plain, as set forth in the Code of Federal Regulations at 44 CFR, 60.3. In such cases, however, it shall be understood that the state (or other jurisdictional agency) shall be able to explain these requirements and criteria.

1.2 Authority and Acknowledgements

The source of authority for this Flood Insurance Study is the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The hydrologic and hydraulic analyses for this study were performed by T & M Associates for the Federal Emergency Management Agency, under Contract No. H-4807. This work was completed in August 1980.

1.3 Coordination

On June 11, 1978, an initial Consultation and Coordination Officer's (CCO) meeting was held to identify the streams requiring detailed study. This meeting was attended by representatives of the FEMA, T & M Associates (the study contractor) and the City of Somers Point.

A search for basic data was made at all levels of government. A meeting was held with the city engineer on June 11, 1979, to discuss flood problems within the community. Additional contacts were made with the U. S. Army Corps of Engineers (COE), the FEMA, the Atlantic County

BEST DOCUMENT AVAILABLE

Mosquito Commission, the Atlantic County Soil Conservation District, and officials of the City of Somers Point to obtain information pertaining to flood problems within the community. In addition, legal notice announcing the beginning of the study and stating its objectives was placed in local newspapers to notify all interested persons to submit any relevant facts and technical data concerning local flooding.

On January 7, 1982, the results of the study were reviewed at the final CCO meeting attended by representatives of the FEMA, the study contractor, and the City of Somers Point.

2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the incorporated area of the City of Somers Point, Atlantic County, New Jersey. The area of study is shown on the Vicinity Map (Figure 1).

A tidal flood analysis was performed on Great Egg Harbor Bay which affects the entire shoreline of the City of Somers Point, including Patcong Creek, Great Egg Harbor, Ship Channel, Bass Harbor and Steelman Bay. The areas studied by detailed methods were selected with priority given to all known flood hazard areas and areas of projected development and proposed construction for the next five years, through August 1985.

2.2 Community Description

The City of Somers Point is located in the southeastern portion of Atlantic County, approximately 10 miles southwest of Atlantic City. Somers Point is bordered on the north by the City of Linwood and the Township of Egg Harbor, on the east and south by the Great Egg Harbor Bay, and on the west by the Township of Egg Harbor.

The total area of Somers Point is 4.08 square miles. According to the U. S. Census Bureau, the city had a 1970 population of 7,919, a 1977 population of 10,119, and a 1980 population of 10,330 (Reference 1).

The topography of Somers Point is a low relief plain. The west, south, and east fringe areas of the city are predominantly marshland. The climate is temperate with warm summers and moderate winters. An annual rainfall of 38.5 inches was reported in 1977.

Somers Point is primarily a residential community. The city is a suburb of Atlantic City and benefits from the resort industry generated there.

BEST DOCUMENT AVAILABLE

BEST DOCUMENT AVAILABLE

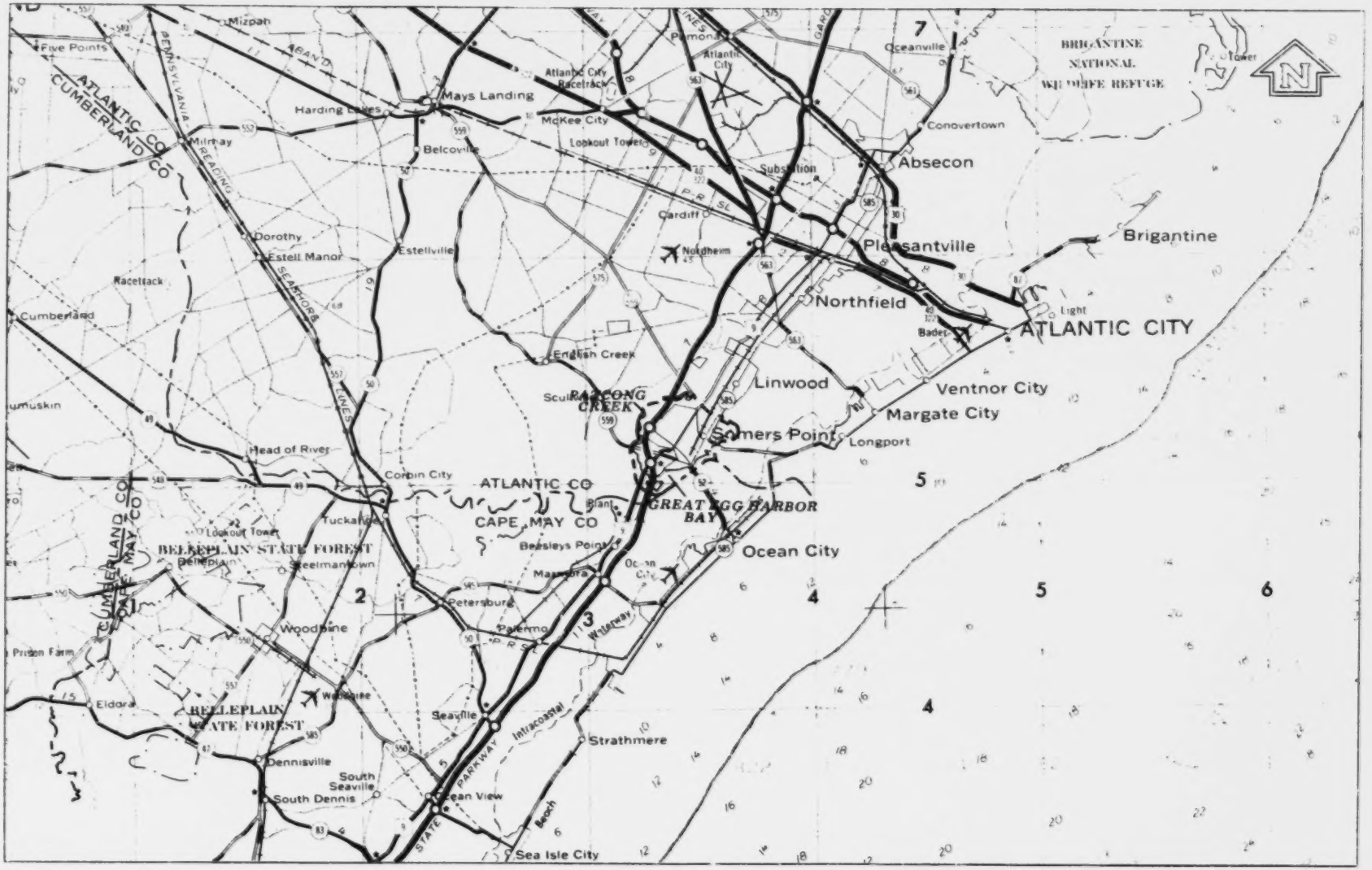

FIGURE 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF SOMERS POINT, NJ
(ATLANTIC CO.)

APPROXIMATE SCALE

4 0 4 8 12 MILES

3

VICINITY MAP

Somers Point has a medium density population with most of the land area developed. The undeveloped land is primarily found at elevations below 10 feet along the coast. There is some coastal development in the flood plain near Bass Harbor.

2.3 Principal Flood Problems

Discussions with the city engineer, the county engineer, construction officials, as well as field reconnaissance of the community and literature investigations, have indicated no areas of problem flooding. Localized flooding is experienced during high tides in the area of the marina on Bay Avenue.

Historical documents and newspaper files have been searched for information concerning past floods. In addition, area residents along the coast have been interviewed about past flooding experiences. As a result, local flood problems both past and future have been identified from these investigations and from hydrologic studies of possible future floods along the shoreline.

2.4 Flood Protection Measures

The City of Somers Point employs no formal flood protection measures. The COE reported that there are no flood protection measures in progress within the city. Development in the flood plain areas is regulated by the New Jersey Department of Environmental Protection (NJDEP).

3.0 ENGINEERING METHODS

For the flooding source studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data for this study. Flood events of a magnitude which are expected to be equalled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for flood plain management and for flood insurance premium rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10-, 2-, 1-, and 0.2-percent chance, respectively, of being equalled or exceeded during any year. Although the recurrence interval represents the long-term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than one year are considered. For example, the risk of having a flood which equals or exceeds the 100-year flood (one-percent chance of annual occurrence) in any 50-year period is about 40 percent (four in ten) and, for any 90-year period, the risk increases to about 60 percent (six in ten). The analyses reported here

BEST DOCUMENT AVAILABLE

reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak elevation-frequency relationships for floods of the selected recurrence intervals for the flooding source studied in detail affecting the community.

Analyses of the tidal elevations were based on the data presented in Flood Plain Information on the Tidal Lands of Cape May County, New Jersey, prepared by the Philadelphia District of the COE (Reference 2).

Hydrologic data available in and around the study area are sparse. Tidal gages located at the west end of Cape May Canal and at Beasley's Point are the only recording gages existing in Cape May County. The U. S. Coast and Geodetic Survey stations at Atlantic City, New Jersey, Lewes, Delaware, and Reedy Point, Delaware, have the most complete records in the general vicinity of the study area. This makes their recordings useful for the determination of pertinent tidal elevations.

The City of Somers Point is bounded on three sides by tidal bays and estuaries. Tidal effects on the coastal areas of the city were determined by a review of stage-frequency data developed by the COE for the Flood Insurance Study for the Township of Upper, New Jersey (Reference 3). The stage-discharge elevations developed for that study, as well as other available information, were reviewed in a meeting held on June 16, 1978, between representatives of the NJDEP, the FEMA, and the study contractor.

A summary of peak elevation-frequency relationships for the areas studied by detailed methods is shown in Table 1, "Summary of Elevations".

TABLE 1 - SUMMARY OF ELEVATIONS

FLOODING SOURCE AND LOCATION	ELEVATION (feet) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
GREAT EGG HARBOR BAY				
The entire shoreline within the City of Somers Point	6.7	8.3	9.2	14.0

Tidal frequency-elevation can be defined by using an example of a 10-year frequency storm-tide. This is the tide level expected to be equalled or

BEST DOCUMENT AVAILABLE

exceeded an average of 10 times in 100 years; a 50-year frequency storm-tide can be expected to be equalled or exceeded an average of twice in 100 years.

The storm-surge elevations for the 10-, 50-, 100-, and 500-year floods have been determined for Patcong Creek, Great Egg Harbor, Ship Channel, Bass Harbor, and Steelman Bay. The analyses reported herein reflect the stillwater elevations due to tidal and wind set up effects, but do not include the contributions from wave action effects such as the wave crest height and wave runup. Nonetheless, this additional hazard due to wave action effects should be considered in the planning of future development.

3.2 Hydraulic Analyses

Hydraulic analyses of the shoreline characteristics of the flooding source studied in detail were carried out to provide estimates of the elevations of floods of the selected recurrence intervals along the shorelines.

All elevations used in this study are referenced to the National Geodetic Vertical Datum of 1929 (NGVD), formerly referred to as Sea Level Datum of 1929. Locations of the elevation reference marks used in the study are shown on the maps.

4.0 FLOOD PLAIN MANAGEMENT APPLICATIONS

The National Flood Insurance Program encourages state and local governments to adopt sound flood plain management programs. Therefore, each Flood Insurance Study includes a flood boundary map designed to assist communities in developing sound flood plain management measures.

4.1 Flood Boundaries

In order to provide a national standard without regional discrimination, the 100-year flood has been adopted by the FEMA as the base flood for purposes of flood plain management measures. The 500-year flood is employed to indicate additional areas of flood risk in the community. The 100- and 500-year boundaries were delineated using limited planimetric maps of the study area at a scale of 1:4,800 (Reference 4). In cases where the 100- and 500-year flood boundaries are close together, only the 100-year boundary has been shown.

Flood boundaries are indicated on the Flood Insurance Rate Map. On this map, the 100-year flood boundary corresponds to the boundary of the areas of special flood hazards (Zone A5), and the 500-year boundary corresponds to the boundary of areas of moderate flood hazards (Zone B).

BEST DOCUMENT AVAILABLE

Small areas within the flood boundaries may lie above the flood elevations and, therefore, may not be subject to flooding. Owing to limitations of the map scale and lack of detailed topographic data, such areas are not shown.

5.0 INSURANCE APPLICATION

In order to establish actuarial insurance rates, the FEMA has developed a process to transform the data from the engineering study into flood insurance criteria. This process includes the determination of reaches, Flood Hazard Factors (FHFs), and flood insurance zone designations for the flooding source affecting the City of Somers Point.

5.1 Reach Determinations

Reaches are defined as lengths of watercourses or waterbodies having relatively the same flood hazard. In tidal areas, reaches are limited to the distance for which the difference between the 10- and 100-year flood elevations does not vary more than 1.0 foot. Using these criteria, the entire City of Somers Point shoreline qualifies as one reach whose flooding source is Great Egg Harbor Bay. The location of this reach is shown on the Flood Insurance Rate Map.

5.2 Flood Hazard Factors

The FHF is the FEMA device used to correlate flood information with insurance rate tables. Correlations between property damage from floods and their FHFs are used to set actuarial insurance premium rate tables based on FHFs from 005 to 200.

The FHF for a reach is the average weighted difference between the 10- and 100-year flood water-surface elevations expressed to the nearest 0.5 foot, and shown as a three-digit code. For example, if the difference between water-surface elevations of the 10- and 100-year floods is 0.7 foot, the FHF is 005; if the difference is 1.4 feet, the FHF is 015; if the difference is 5.0 feet, the FHF is 050. When the difference between the 10- and 100-year water-surface elevations is greater than 10.0 feet, accuracy for the FHF is to the nearest foot.

5.3 Flood Insurance Zones

After the determination of reaches and their respective FHFs, the entire incorporated area of the City of Somers Point was divided into zones, each having a specific flood potential or hazard. Each zone was assigned one of the following flood insurance zone designations:

BEST DOCUMENT AVAILABLE

Zone A5: Special Flood Hazard Areas inundated by the 100-year flood, determined by detailed methods; base flood elevations shown, and zones subdivided according to FHF.

Zone B: Areas between the Special Flood Hazard Area and the limits of the 500-year flood, including areas of the 500-year flood plain that are protected from the 100-year flood by dike, levee, or other water control structure; also, areas subject to certain types of 100-year shallow flooding where depths are less than 1.0 foot; and areas subject to 100-year flooding from sources with drainage areas less than 1 square mile. Zone B is not subdivided.

Zone C: Areas of minimal flooding.

Table 2, "Flood Insurance Zone Data," summarizes the flood elevation differences, FHFs, flood insurance zones, and base flood elevations for the flooding source studied in detail in the City of Somers Point.

5.4 Flood Insurance Rate Map Description

The Flood Insurance Rate Map for the City of Somers Point is, for insurance purposes, the principal result of the Flood Insurance Study. This map contains the official delineation of flood insurance zones and base flood elevation lines. Base flood elevation lines show the locations of the expected whole-foot water-surface elevations of the base (100-year) flood. This map is developed in accordance with the latest flood insurance map preparation guidelines published by the FEMA.

6.0 OTHER STUDIES

Flood Insurance Studies are presently being prepared for the Township of Egg Harbor and the City of Linwood (References 5 and 6). The results of this study will match exactly with the results of those studies.

Analyses of tidal elevations for this study were based on the data presented in Flood Plain Information on the Tidal Lands of Cape May County, New Jersey (Reference 2). U. S. Geological Survey maps of flood-prone areas were prepared in 1972 (Reference 7). The flood boundaries delineated were estimated from regional stage-frequency relations. The analyses presented in this study are more detailed and supersede the boundaries presented on the flood-prone maps.

BEST DOCUMENT AVAILABLE

BEST DOCUMENT AVAILABLE

FLOODING SOURCE	PANEL[1]	ELEVATION DIFFERENCE[2] BETWEEN 1.0% (100-YEAR) FLOOD AND			FHF	ZONE	BASE FLOOD ELEVATION[3] (NGVD)
		10% (10 YR.)	2% (50 YR.)	0.2% (500 YR.)			
Great Egg Harbor Bay Reach 1	01,02	-2.3	-0.7	5.0	025	A5	9

[1]Flood Insurance Rate Map Panel
[2]Weighted Average
[3]Rounded to the nearest foot - see map

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF SOMERS POINT, NJ

(ATLANTIC CO.)

FLOOD INSURANCE ZONE DATA

9 GREAT EGG HARBOR BAY

This study is authoritative for purposes of the Flood Insurance Program, and the data presented here either supersede or are compatible with previous determinations.

7.0 LOCATION OF DATA

Survey, hydrologic, hydraulic, and other pertinent data used in this study can be obtained by contacting the office of the Insurance and Mitigation Division of the Federal Emergency Management Agency, Regional Director, Region II Office, 26 Federal Plaza, Room 19-100, New York, New York 10278.

8.0 BIBLIOGRAPHY AND REFERENCES

1. U. S. Department of Commerce, Bureau of the Census, 1980 Census of Population, Number of Inhabitants, New Jersey, Washington, D. C., U. S. Government Printing Office, 1981.

2. U. S. Army Corps of Engineers, Philadelphia District, Flood Plain Information on the Tidal Lands of Cape May County, New Jersey, Philadelphia, Pennsylvania, June 1968.

3. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Study, Township of Upper, Cape May County, New Jersey (Unpublished).

4. Digital Aerial Surveys of High Bridge, New Jersey, Topographic Map of the City of Somers Point, New Jersey, limited planimetric mapping, 1979.

5. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Study, Township of Egg Harbor, Atlantic County, New Jersey (Unpublished).

6. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Study, City of Linwood, Atlantic County, New Jersey (Unpublished).

7. U. S. Department of the Interior, Geological Survey, Map of Flood-Prone Areas, Scale 1:24,000: Ocean City, New Jersey, 1972; Marmora, New Jersey, 1972.

Atlantic County Board of Chosen Freeholders and Planning Board, Atlantic County Drainage Study, Parts I and II, April 1971.

Walker, Previti, Totten and Holmes, Development Plan, City of Somers Point, Atlantic County, New Jersey, Somers Point, New Jersey, May 1979.

BEST DOCUMENT AVAILABLE